A FEW THOUGHTS ON CATASTROPHE LOSSES

*By Mr. V. Anantha Subramaniam**

These are times when not a day passes without at least a report appearing in the newspapers about losses due to natural calamities or man-made tragedies. Unseasonal rains leading to large-scale flooding or sudden snowing or freezing on the onset of summer or prolonged famines or forest fires seem to be the order of the day. There is greater awareness about green house effect and global warming. International conferences have been held to tackle some of these problems. Most of the countries have started enforcing emission standards for automobiles. Alternate sources of energy to fossil fuel are being seriously explored. An international panel of eminent climatologists have observed that the changes in the global temperature and other climatic parameters can no longer be explained by natural variability alone but are most probably caused by man. It is expected that the mean global temperature will increase by another 1-3.5^0 C within the next 100 years and mankind will be experiencing temperatures it has never experienced before. While most of the world is reeling under the influence of El Nino, one shudders to imagine the scenario when ocean temperatures go up and icebergs start melting. These vagaries of nature coupled with human activities bring about major losses which insurers designate as "Catastrophic", What is the impact of these losses and how do we protect ourselves from their onslaught?

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What is a Catastrophe?

The dictionary meaning of "Catastrophe" is "a sudden great disaster," "a distress end", "a fiasco". One hears about catastrophes very often nowadays. Normally one tends to associate catastrophes with forces of nature like storm, tempest, floods, earthquake etc. But it is no longer the exclusive prerogative of mother nature alone to bring about catastrophes. Man is equally if not more guilty in bringing about catastrophic losses. The meddling of man with nature has brought about untold suffering to the mankind as a whole.

What is our Future?

We are on the threshold of entering the next millennium and we can look back with great satisfaction at the tremendous strides made in science and technology particularly in the last 50 years of the present century. Man has made amazing progress during these five decades. In every area of human life, one can feel the impact of improvement brought about by our scientists and inventors. Today the world has shrunk-transport has become faster, most of the people are away by only a phone call. It appears water may be available on the Moon and entrepreneurs are planning to build hotels there and man is eyeing other planets also. There is virtually an IT explosion. The recent cloning of Dolly has opened up an exciting front and has given rise to fresh controversies. Cures for many diseases have contributed to the longevity of life and it is expected that soon older people will outnumber youngsters in most countries. Futurologists are working overtime looking into their crystal balls to predict the pattern of life in the coming years. In short longer life with all facilities for comfort and relaxation is predicted. A very high degree of mechanization at the press of a button is predicted in the 21st century so much so a cynical student of Lamark will be tempted to theorize that the finger tips of future men will be unusually longer. Does it mean that life is going to be a bed of roses in the next century? Perhaps not if our past is any indication.

Trend in the last four decades

During the past four decades alone, unfortunately natural and man-made catastrophes have registered an increase. To quote from **"Topics"** of **Munich Re** "The pronounced trend towards ever increasing numbers of catastrophes with ever-increasing costs continued. A comparison of the last ten years with the 1960s reveals that there was a fourfold increase in the number of great natural catastrophes over this period. After allowing for inflation, economic losses were 8 times as high and insured losses no less than 15 times as high. A reduction in this trend is not to be expected in the foreseeable future. On the contrary, its primary causes, in particular the rapid increase in the concentration of populations and values in cities exposed to catastrophes and the growing susceptibility to losses inherent in our modern industrial society suggest that this trend will become even more pronounced in the future. Even today, extreme loss events are possible at any time if any one

Great natural catastrophes 1960-1996

	Decade 1960-69	Decade 1970-79	Decade 1980-89	Last 10 years 87-96	Factor 80s:60s	Factor Last 10 years: 60s
Number	16	29	70	64	4.4	4.0
Economic losses	48.4	93.0	147.6	404.4	3.0	8.4
Insured losses	6.5	10.9	29.8	98.8	4.6	15.2

Source: Topics-Munich Re

of the world's numerous "mega" cities or industrial regions were to suffer a direct hit from a natural catastrophe." The following table illustrates the point.

"Build a dam and Cause an earthquake"

Progress in science and technology have also contributed to this state of affairs. Modern techniques resulting in compression of technology and concentration of industrial units like Industrial Estates have increased the hazards and exposures. Manufacture of bombs has become child's play. Man's greed has given a go by to safety requirements and indiscriminate exploitation has resulted in destruction of natural resources. Laxity in enforcement of safety requirements and even location of plants have contributed to catastrophic losses. An authority on earthquakes was never tired of saying "build a dam and cause an earthquake". The cumulative effect of all these is that "In 1996 the mean global temperature of the earth's lower atmosphere was 0.21° C higher than the mean value recorded for the climatological standard period from 1951 to 1980. This means that 1996 was one of the ten warmest years since worldwide meteorological records were started about 150 years ago. All these have been since 1980.Within the next 50-100 years we can expect temperatures and other climatic conditions that mankind has not experienced in over a million years. Above all, we will be confronted with a massive increase in the occurrence of extreme meteorological values that will frequently result in catastrophes because the people in the regions affected have not experienced such conditions and have therefore not been able to take appropriate loss prevention measures" **(Topics-Munich Re)**

Price for meddling with Nature

Unfortunately the laws of nature dictate that whenever we interfere with mother nature, we pay a heavy price. The side effects have a more telling effect and trigger off newer types of catastrophes. New products and processes while bringing about prosperity to mankind, have also exposed us to perils hitherto unknown. Super tankers are good as long as they do not break and spill oils into

our oceans. Jumbo aircrafts are comfortable so long they do not meet with accident. Factories must grow when economy booms. Alas they also bring about death and disaster should something go wrong like the Bhopal tragedy in India.. In short today one can divide catastrophes into "Natural Catastrophe" and "Man-made Catastrophe". Very often the natural catastrophes are triggered by human actions or failures. This particular part of the world is now experiencing smog due to fires started for clearing the forests. Both economic and health losses have been caused by this.

Natural Vs Man-made Catastrophes

What are these Natural and Man-made catastrophes? When an event is caused by natural forces, it is termed as a "natural catastrophe". This would include Flood, Storm, Earthquake, Drought, Bush Fire, Cold, Frost, Hail and Avalanche. Seaquake and tsunami waves are included under earthquake. In the recent past we have been frequently witnessing "El Nino" effect. Due to this natural phenomenon in the recent past "floods have soaked the Americas and deadly storms have pelted China, droughts have parched Australia and fueled fires in South East Asia and Brazil" according to the Time Magazine.

Man-made catastrophes are also known as technical catastrophes and are caused by human activity. Major fires, explosions, aviation, shipping road/rail and mining disasters, collapse of buildings and bridges and miscellaneous malicious activities such as terrorism come under this classification.

Thus it will be seen that a natural catastrophe may be brought about by a phenomena of nature or it may be triggered off by an action or inaction on the part of man. In the recent past terrorism has assumed serious significance and has become a global phenomenon. Any disgruntled individual or a fundamentalist or a guerrilla can hold the society or the country to ransom. Though most of the terrorist attacks are aimed at individuals, property damage and mass scale personal injury/death is also caused often as when an aircraft is hijacked or the ftermath of the Oklahoma bombings in the USA.

Magnitude of Catastrophe Losses

A reference to the four tables attached **(Courtesy Swiss Re)** would indicate the magnitude of losses suffered. According to **"Sigma" (published by Swiss Re)**, the total losses for the catastrophe year 1996 alone came to US $ 50 billion. Luckily, things were better in 1997.

The year 1995 was considered an exceptional catastrophe year as it set a new high for absolute losses amounting to US $ 180 billion as a result of Kobe earthquake in Japan. 1996 had its quota of catastrophes. In the USA, Hurricane "Fran" caused insured losses of US $ 1.6 billion. Flooding, storms and freezing had their toll. At the end of the year the US alone accounted for 64% of insured losses on global basis.

Europe's Share

Europe also had its share of major fires and bomb attacks. The major fire losses

in 96 were Dusseldorf. air port fire (US $ 315 million in property damage and 16 people were killed), fire at head office of Credit Lyonnais in Paris (loss of US $ 404 million), fire in Channel tunnel (loss of US $ 366 million), bomb attacks in London and Manchester (US $ 890 million in property damage and, 2 killed and 328 injured).

Flooding of Yangtze

Asia too reeled under catastrophic losses. The outstanding catastrophe of 1996 was the flooding of the Yangtze river in China which was the worst in 150 years. Heavy rains in China caused a loss of about US $ 18 billion and 2,700 people were killed. In India cyclone and torrential rains resulted in the death of 2,000 people Bangladesh lost 600 people in a cyclone. The highest loss in Asia was reported in Taiwan when an explosion in a semi conductor plant resulted in claims for US $ 266 million.

Fewer Losses in 1997

1997 appeared to be a good year in that according to Swiss Re's publication **"Sigma"**, the total losses amounted to US $ 28.8 billion of which natural catastrophes accounted for US $ 24 billiion. **Sigma** also lists out the major losses in 1997. The highest total loss was due to flooding in Eastern Europe-5 billion, Earthquake losses in Italy-4.5 billion-all in US $. As far as **Insured losses** are concerned, the highest was East European floods for US $ 940 million, storm damage in United Kingdom for US $ 500 million. Fortunately "there was not a single billion-dollar loss in 1997". Fires in a spinning mill in Japan, a silicon wafer factory in Taiwan and an aircraft hangar in Belgium and an explosion at a gasworks in South Africa resulted in losses amounting to US $ 638 million.

1997 Catastrophes according to regions or countries: (in US $)- Courtesy "Sigma"

region/Country	No	%	Victims	%	Insured losses	%
Europe	45	13	796	4	2,056.4	31
of which UK	7	2	48	0	500.0	7
America	76	22	2,475	11	3,087.0	46
of which USA	38	11	506	2	3,073.0	46
Asia	185	53	16,029	72	857.7	13
of which Japan	4	1	23	0	100.0	1
Africa	31	9	2,821	13	197.7	3
Oceania	2	1	52	0	0.0	0
World oceans/space	9	3	142	1	495.4	7
World	**348**	**100**	**22,315**	**100**	**6,694.2**	**100**

The catastrophe loss figure from 1995 to 1997 fortunately is taking a downward trend. The following table illustrates catastrophes according to regions or countries.

Actual losses more than Insured losses

One should always remember that some of the figures on property losses are only insured losses. The actual loss is bound to be more. Where awareness about insurance is low, the insured losses will also be low but the actual loss will be high. Again the scope of cover varies from country to country. The policy may or may not cover some of the losses. In other words the basic cover may be restricted and extensions at extra premium will have to be obtained for covering social and natural perils. The classic example is India.

In 1984 when the then Prime Minister Mrs. Indira Gandhi was assassinated, large scale rioting broke out in New Delhi resulting in loss of property and life. Even where policies were taken, most of them were for basic cover only and riot extension was not taken Arising out of this experience where most of the claims could not be admitted by the nationalized insurance companies, changes were made in the scope of cover to include such eventualities automatically.

Hence it is imperative on the part of the insured that for his own security he should carefully choose the cover to ensure that he is fully protected. Both the Insurers and Brokers/Agents have a duty to advise the Insured of the scope of protection particularly the exclusions to enable him to decide the type of policy he needs to take.

Protection for the Insurer

While the Insured can protect himself by taking a policy, what about the Insurers? The reinsurance arrangements give necessary back up support. The surplus treaties can give protection only to a certain extent. In a major disaster where a number of policies are involved, the cumulative losses to the retained account or the "Net" may be for a very high amount spelling financial disaster for the direct insurer. It happened earlier. It can happen in future. When Hurricane Andrew hit South east US, in just four days, it produced a hefty US $ 15.5 billion loss-the single insured catastrophe loss. About 14 insurers became insolvent due to losses produced by Hurricane Andrew and Iniki. Such a situation may prove to be difficult both to the insured and insurer. For the Insured, the premium may go up or in extreme cases, the cover itself may not be available. The insurers may also face similar problems in that the cost of reinsurance may go up or worse still reinsurers may leave the market resulting in shrinkage of capacity. Moreover the trend nowadays is that the original sum insured in many risks has reached very high limits making prorata placement expensive and time consuming. The answer lies in going in for catastrophe covers or "Cat" covers-a form of excess of loss reinsurance arrangement.

Excess of loss Reinsurance

According to Mr. DEW Gibbs who wrote

a book on Lloyds of London, Hartford insurance company of America seems to have approached Cuthbert Heath of Lloyds following the San Francisco earthquake of 1906 for a special type of reinsurance protection against conflagration risk but with minimum of administrative work. The solution was an Excess of Loss cover which was devised to take care of such contingencies.

The Cat cover or Cat XL affords protection against losses due to catastrophic occurrences like earthquake, flood etc. The purpose of this arrangement is to provide protection against accumulations that cannot be controlled or against a series of losses arising out of one loss event/ occurrence. An XL cover may be a Per Risk cover when reinsurance is arranged to apply to each one of the individually identified risks in respect of each and every loss. Such an arrangement is called a per risk XL cover.

A hurricane like Hugo or Andrew or a flood may last for more than one day and affect a number of risks simultaneously producing a series of losses which arise out of one event. All such losses arising out of one occurrence/event will be aggregated and the amount over and above the deductible will attach to the reinsurers. This is the "per event" cover.

Many an Insurer was able to weather financial ruin thanks to such XL arrangement. As stated elsewhere cat losses are getting bigger and more frequent. That means that mankind is in for major losses in future.

However it is hoped that with his instinct for survival the human beings will find a way to avoid or escape from such catastrophic losses or at least to minimize their impact. Who knows like Sanfrancisco earthquake giving birth to a new type of reinsurance protection, newer methods of risk management may emerge so that the human race continues to prosper.

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